

## CLAIMS

1. A light source device comprising: an arc tube having a pair of main electrodes arranged on one electrode axis; and a reflector for reflecting an outgoing light emitted from the arc tube, the electrode axis of the main electrodes being arranged to cross a light axis of the outgoing light, wherein the reflector is formed of a first reflector portion having a spherical surface centered at a light generation point of the arc tube and a second reflector portion having a curved surface different from the first reflector portion, and

10 a condenser that condenses the outgoing light emitted from the arc tube to other than the second reflector portion so as to illuminate the condensed outgoing light in a predetermined direction or to a predetermined area is provided.

15 2. The light source device according to Claim 1 wherein the second reflector portion is formed with an ellipsoid.

20 3. The light source device according to Claim 1 wherein the second reflector portion is formed with a hyperboloid.

25 4. The light source device according to Claim 1 wherein

the second reflector portion is formed with a spherical surface having a curvature different from the spherical surface of the first reflector portion.

5 5. The light source device according to any one of Claims 1 to 4, further comprising a luminance equalization means for equalizing a surface luminance of the light beams by shaping the outgoing light emitted from the arc tube into a designated pattern and by mixing by multiple reflection.

10 6. The light source device according to any one of Claims 1 to 4, further comprising a luminance equalization means for equalizing a surface luminance of the light beams by shaping the outgoing light emitted from a light source into a designated pattern and by mixing by multiple reflection.

15 7. The light source device according to Claim 5 or 6, wherein the reflector and the luminance equalization means are integrally formed.

20 8. The light source device according to any one of Claims 1 to 7, wherein sealed portions that seal the main electrodes are formed on both sides of the light generation point of the arc tube, and heat radiation members are arranged between 25 the sealed portions and the reflector.

9. The light source device according to any one of Claims 1 to 8, wherein the reflector has a separable structure such that it can be separated along a plane perpendicular to the optical axis.

10. The light source device according to any one of Claims 1 to 9, wherein the reflector has a separable structure such that it can be separated along a plane parallel to the optical axis.

11. A video display apparatus in which the light source device according to any one of Claims 1 to 10 is used.